

Lower Payette River Subbasin Assessment and Total Maximum Daily Load

December 1999

Prepared For State of Idaho

by
Idaho Division of Environmental Quality,
Boise Regional Office
1445 North Orchard
Boise, Idaho 83706

Principle Author:
Michael J. Ingham

Appendix B. Water Quality Information 1997- 1999 Lower Payette River

	Temp.	Dissolved Oxygen	Conductivity	Flow measured	pH	Nitrates/ Nitrites	TKN	Ammonia	Total Phos.	ortho- Phos.	Hg	Ar	Fe	Susp. Solids	Turbidity	Fecal Coliform	Fecal Strep.	E. coli
	C	mg/l	umhos	CFS	su	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	mg/l	FTU	CFU/100 ml	CFU/100 ml	CFU/100 ml
29-Oct-96	8.83	12.74	174	1450	8.45	0.31	0.19	0.01	0.047	0.02	0.2		300	8	3	40	60	
20-Nov-96	6.02	11.91	90.3	6790	7.57	0.08	0.37	0.02	0.085	0.018	0.2		1250	46	8	102	168	
16-Dec-96	2.48	14.31	89.5	3740	7.51	0.24	0.32	0.01	0.062	0.024	0.2		720	12	6	25	10	
21-Jan-97	2.46	14.03	67.8	7120	7.03	0.19	0.28	0.04	0.059	0.024	0.2		760	14	8	28	38	
18-Feb-97	3.95	15	69.04	7770	6.96	0.18	0.3	0.02	0.066	0.024	0.2		990	13	8	40	16	
25-Mar-97	6.04	12.11	64.73	10100	7.38	0.11	0.26	0.01	0.1	0.025	0.2		670	16	24	60	30	
08-Apr-97	6.26	11.79	66.4	5490	7.29	0.12	0.26	0.01	0.181	0.023	0.2		1590	25	9	148	70	
22-Apr-97	8.08	12	53.3	13800	7.9	0.12	0.46	0.02	0.216	0.037	0.2		4850	134	61	300	180	
07-May-97	10.18	11.03	61.2	9050	7.4	0.08	0.24	0.01	0.075	0.026	0.2		1280	26	11	130	110	
21-May-97	10.62	11.32	50.3	12100	7.63	0.09	0.2	0.01	0.096	0.024	0.2		1530	48	20	180	170	
03-Jun-97	12.68	10.99	48.5	12700	7.47	0.08	0.24	0.01	0.09	0.015		2.0	1550	59	14	210	160	
17-Jun-97	15.39	10.26	48.6	12600	7.57	0.06	0.17	0.01	0.063	0.013		2.0	1020	26	9	110	90	
14-Jul-97	17.8		101.3	2900	7.77	0.17	0.42	0.01	0.082	0.023		2.0	1010	30	6	80	164	
29-Jul-97	21.88	8.83	142.2	1810	7.93	0.35	0.36	0.02	0.231	0.034		2.0	2090	50	8	56	60	
13-Aug-97	20.09	8.75	145	1780	7.63	0.41	0.31	0.01	0.093	0.037		2.0	940	22	6	80	540	
26-Aug-97	21.58	11.97	182	1370	8.43	0.48	0.31	0.02	0.113	0.052		4.0	880	28	6	100	170	
09-Sep-97	15.92	9.39	271.1	608	7.8	0.8	0.36	0.01	0.08	0.04		6.0	530	14	4	100	190	
26-Sep-97	18.67	9.85	290.6	555	7.93	1.06	0.31	0.02	0.114	0.061		5.0	710	20	6	40	80	
27-Oct-97	10.1		181	1430	6.81	1.02	0.26	0.01	0.079	0.025		1.0	760	24	4	20	24	
18-Nov-97	4.81	11.68	160	1520	7.87	0.3	0.19	0.01	0.059	0.015		1.0	490	8	3	16	6	
09-Dec-97	1.45	14.1	125	1960	8.4	0.28	0.24	0.01	0.064	0.019		1.0	440	9	5	28	82	
21-Jan-98	2.05		126	2210	8.34		0.7	0.08	0.13			1.0	6450	120	47			
23-Jan-98	3.79	13.51	124	2390	8.09	0.24	0.3	0.03	0.082	0.036		1.0	1180	18	8	140	40	
19-Mar-98	6.05	13.09	95	3160	7.2	0.11	0.27	0.01	0.057	0.013		1.0	780	14	6			
24-Mar-98				3160												540	140	
06-Apr-98	7.24	12.4	80	4290	7.75	0.1	0.27	0.01	0.064	0.018		1.0	1150	20	10	180	108	56
28-Apr-98	9	12.81	65.4	5590	6.99	0.1	0.3	0.02	0.073	0.022		1.0	980	16	8	162	96	20
12-May-98	10.76	12.02	52.5	9680		0.09	0.33	0.02	0.097	0.025		1.0	1460	32	11	540	540	116
28-May-98				18100		0.06	0.51	0.03	0.16	0.057		1.0	4130	73	32	3100	3040	44
08-Jun-98	13.34	11.62	55.7	10400	7.06	0.03	0.19	0.01	0.057	0.016		1.0	680	16	6	80	80	2
22-Jun-98	14.66		55.5	5200	7.96	0.07	0.2	0.01	0.058	0.014		1.0	650	14	4	140	76	10
06-Jul-98	19.37	10.98	92.9	4130	7.93	0.13	0.28	0.02	0.056	0.012		1.0	650	13	4	60	74	52
20-Jul-98	22.87	8.86	141.4	1520	7.81		0.36	0.02	0.098	0.038		1.0	850	22	6	1070	570	80
05-Aug-98	22.48	7.83	231	1190	8.18	0.54	0.36	0.01	0.1	0.054		3.0	820	22	7	180	340	4
17-Aug-98	19.69	9.79	265	1040	7.88	0.63	0.28	0.02	0.112	0.049		4.0	990	22	8	260	700	60
31-Aug-98	23.86		235	1380	8.53	0.54	0.44	0.03	0.113	0.048		3.0	1180	34	9	660	580	40
28-Sep-98	16.1	8.1	217	858	7.25	0.65	0.33	0.02	0.105	0.048		2.0	1050	24	9	300	230	24

Blank Spaces=Data Not Available, Underlined Values=Less Than, Irrigation Season Defined as April 1 through Sept. 30

c:\data\lotus\lowpayte\lprtrmdl\sba-trmdl.wk4

	Temp.	Dissolved Oxygen	Conductivity	Flow measured	pH	Nitrates/ Nitrites	TKN	Ammonia	Total Phos.	ortho- Phos.	Hg	Ar	Fe	Susp. Solids	Turbidity	Fecal Coliform	Fecal Strep.	E. coli
	C	mg/l	umhos	CFS	su	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	mg/l	FTU	CFU/100 ml	CFU/100 ml	CFU/100 ml
Overall																		
Average	11.9	11.4	123.4	5161	7.3	0.29	0.31	0.02	0.095	0.029	0.2	2.0	1316	30	11	266	258	42
Stand. Dev.	6.9	1.9	71.0	4489	1.8	0.27	0.10	0.01	0.042	0.014	0.0	1.4	1241	28	12	531	511	32
Count	35	30	35	37	36	34	36	36	36	35	10	26	36	36	36	35	35	12
Max.	23.9	15.0	290.6	18100	8.5	1.06	0.70	0.08	0.231	0.061	0.2	6.0	6450	134	61	3100	3040	116
Min.	1.5	7.8	48.5	555	0.0	0.03	0.17	0.01	0.047	0.012	0.2	1.0	300	8	3	16	6	2
Water year 1997																		
Average	11.6	11.5	112.0	6207	7.6	0.3	0.3	0.01	0.103	0.029	0.20	3	1259	33	12	102	128	ERR
Stand. Dev.	6.4	1.8	72.7	4522	0.4	0.3	0.1	0.01	0.051	0.012	0.00	2	970	28	13	70	117	ERR
Count	18.0	17.0	18.0	18	18	18	18	18.00	18	18	10	8	18	18	18	18	18	0
Max.	21.9	15.0	290.6	13800	8.5	1.1	0.5	0.04	0.231	0.061	0.20	6	4850	134	61	300	540	ERR
Min.	2.5	8.8	48.5	555	7.0	0.1	0.2	0.01	0.047	0.013	0.20	2	300	8	3	25	10	ERR
Irrigation Season 1997																		
Average	14.9	10.6	121.7	6230	7.7	0.32	0.30	0.01	0.120	0.032	0.2	3.1	1498	40	13	128	165	ERR
Stand. Dev.	5.1	1.2	83.2	5168	0.3	0.31	0.08	0.01	0.055	0.014	0.0	1.5	1094	31	15	70	122	ERR
Count	12	11	12	12	12	12	12	12	12	12	4	8	12	12	12	12	12	0
Max.	21.9	12.0	290.6	13800	8.4	1.06	0.46	0.02	0.231	0.061	0.2	6.0	4850	134	61	300	540	ERR
Min.	6.3	8.8	48.5	555	7.3	0.06	0.17	0.01	0.063	0.013	0.2	2.0	530	14	4	40	60	ERR
Non-Irrigation 1997																		
Average	5.0	13.4	92.6	6162	7.5	0.19	0.29	0.02	0.070	0.023	0.2	ERR	782	18	10	49	54	ERR
Stand. Dev.	2.3	1.2	37.8	2813	0.5	0.08	0.06	0.01	0.018	0.003	0.0	ERR	292	13	7	26	54	ERR
Count	6	6	6	6	6	6	6	6	6	6	6	0	6	6	6	6	6	0
Max.	8.8	15.0	174.0	10100	8.5	0.31	0.37	0.04	0.100	0.025	0.2	ERR	1250	46	24	102	168	ERR
Min.	2.5	11.9	64.7	1450	7.0	0.08	0.19	0.01	0.047	0.018	0.2	ERR	300	8	3	25	10	ERR
Water year 1998																		
Average	12.2	11.3	135.4	4169	6.9	0.31	0.32	0.02	0.087	0.030	ERR	1.4	1372	28	10	440	396	42
Stand. Dev.	7.3	2.0	67.1	4225	2.5	0.28	0.12	0.02	0.029	0.015	ERR	0.9	1461	26	11	719	697	32
Count	17	13	17	19	18	16	18	18	18	17	0	18	18	18	18	17	17	12
Max.	23.9	14.1	265.0	18100	8.5	1.02	0.70	0.08	0.160	0.057	ERR	4.0	6450	120	47	3100	3040	116
Min.	1.5	7.8	52.5	858	0.0	0.03	0.19	0.01	0.056	0.012	ERR	1.0	440	8	3	16	6	2
Irrigation Season 1998																		
Average	16.3	10.5	135.6	5282	6.4	0.27	0.32	0.02	0.091	0.033	ERR	1.7	1216	26	10	561	536	42
Stand. Dev.	5.5	1.8	80.9	4966	2.9	0.25	0.09	0.01	0.030	0.016	ERR	1.0	909	16	7	816	787	32
Count	11	9	11	12	12	11	12	12	12	12	0	12	12	12	12	12	12	12
Max.	23.9	12.8	265.0	18100	8.5	0.65	0.51	0.03	0.160	0.057	ERR	4.0	4130	73	32	3100	3040	116
Min.	7.2	7.8	52.5	858	0.0	0.03	0.19	0.01	0.056	0.012	ERR	1.0	650	13	4	60	74	2
Non-Irrigation 1998																		
Average	6.7	12.4	157.4	2297	7.8	0.50	0.32	0.02	0.084	0.028	ERR	1.6	1544	30	11	131	62	ERR
Stand. Dev.	5.6	1.5	60.2	1053	0.5	0.39	0.16	0.02	0.026	0.017	ERR	1.4	2015	37	15	188	44	ERR
Count	7	5	7	9	7	6	7	7	7	6	0	7	7	7	7	6	6	0
Max.	18.7	14.1	290.6	4290	8.4	1.06	0.70	0.08	0.130	0.061	ERR	5.0	6450	120	47	540	140	ERR
Min.	1.5	9.9	95.0	555	6.8	0.11	0.19	0.01	0.057	0.013	ERR	1.0	440	8	3	16	6	ERR

Statistical Summary

	Temp.	Dissolved Oxygen	Conductivity	Flow estimated	pH	Nitrates/ Nitrites	TKN	Ammonia	Total Phos.	ortho- Phos.	Hg	Ar	Fe	Susp. Solids	Turbidity	Fecal Coliform	Fecal Strep.	E. coli
	C	mg/l	umhos	CFS	su	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	mg/l	FTU	CFU/100 ml	CFU/100 ml	CFU/100 ml
29-Oct-96	8.8	12.49	179	1543	8.44	0.36	0.2	0.01	0.057	0.026	0.2		340	8	3	52	48	
20-Nov-96	5.87	11.97	92.4	6883	7.63	0.1	0.38	0.02	0.077	0.017	0.2		1170	40	8	68	560	
16-Dec-96	2.41	14.02	92.4	3833	7.58	0.25	0.3	0.01	0.066	0.025	0.2		740	10	6	120	30	
21-Jan-97	2.46	13.83	76.4	7213	7.49	0.22	0.27	0.04	0.064	0.029	0.2		820	17	8	20	18	
18-Feb-97	4.2	14.51	91.3	7863	6.81	0.2	0.25	0.02	0.065	0.027	0.2		850	10	8	24	20	
25-Mar-97	6.04	12.37	67.28	10193	7.24	0.08	0.39	0.01	0.136	0.046	0.2		2040	40	17	60	40	
08-Apr-97	7.38	9.81	133	5583	6.21	0.12	0.41	0.02	0.149	0.036	0.2		2640	66	15	100	110	
22-Apr-97	8.11	11.87	57.7	13893	7.99	0.15	0.52	0.02	0.257	0.047	0.2		4480	134	13	580	320	
07-May-97	10.77	9.46	95.3	9143	7.36	0.11	0.032	0.02	0.114	0.05	0.2		1650	33	13	200	160	
21-May-97	10.97	9.57	62.5	12193	7.51	0.12	0.32	0.02	0.14	0.05	0.2		4130	119	39	120	160	
03-Jun-97	12.77	10.73	54.9	12793	7.34	0.11	0.37	0.02	0.192	0.04		2.0	3510	106	24	100	130	
17-Jun-97	15.51	9.92	54.2	12693	7.79	0.21	0.42	0.02	0.241	0.167		2.0	930	14	6	140	700	
14-Jul-97	18.31		106.7	2993	7.92	0.22	0.42	0.01	0.118	0.024		2.0	1340	42	7	140	140	
29-Jul-97	22.07	8.76	148.8	1903	7.81	0.4	0.33	0.01	0.1	0.036		2.0	3310	30	7	50	60	
13-Aug-97	20.35	8.73	149	1873	7.71	0.46	0.36	0.02	0.102	0.043		3.0	1040	30	7	140	320	
26-Aug-97	21.17	12.3	188	1463	8.53	0.5	0.28	0.02	0.108	0.055		4.0	790	22	5	260	120	
09-Sep-97	18.84	9.83	280	701	7.68	0.8	0.38	0.02	0.09	0.05		6.0	610	18	5	140	220	
26-Sep-97	16.24	8.36	267	648	7.37	1.02	0.45	0.02	0.124	0.062		5.0	700	18	5	30	10	
27-Oct-97	10		186	1523	6.82	0.02	0.23	0.01	0.086	0.027		1.0	860	27	4	80	36	
18-Nov-97	5.02	11.59	163	1613	7.98	0.32	0.24	0.01	0.066	0.16		1.0	510	11	4	26	16	
09-Dec-97	1.5	14.1	125	2053	8.4	0.31	0.23	0.01	0.067	0.019		1.0	530	13	6	26	96	
21-Jan-98	2.17		130	2303	7.75		0.77	0.09	0.27			1.0	6590	122	44			
23-Jan-98	3.99	13.69	126	2483	8	0.31	0.24	0.03	0.08	0.049		1.0	1310	21	8	60	20	
19-Mar-98	6.43	13.3	98	3253	7.55	0.13	0.27	0.02	0.083	0.015		1.0	1040	30	7			
24-Mar-98				3253												136	160	
06-Apr-98	7.32	12.53	82.8	4383	7.76	0.16	0.3	0.01	0.063	0.02		1.0	1000	15	8	140	60	12
28-Apr-98	9.21	12.04	69.1	5683	7.06	0.13	0.37	0.03	0.4	0.036		1.0	5130	139	11	146	121	36
12-May-98	13.1	8.6	92	9773		0.039	0.39	0.03	0.14	0.037		1.0	1780	41	12	440	600	130
28-May-98				18193														
08-Jun-98	13.34	11.62	55.7	10493	7.06	0.06	0.74	0.02	0.2	0.02		1.0	3250	127	14	120	120	2
22-Jun-98	14.85		61.2	5293	8.34	0.54	0.27	0.02	0.075	0.019		1.0	870	22	6	250	220	10
06-Jul-98	19.54	11.07	112.6	4223	7.97	0.15	0.12	0.03	0.065	0.019		1.0	720	18	4	60	60	10
20-Jul-98	23.11	9.07	148	1613	7.87	0.91	0.38	0.02	0.11	0.017		1.0	1160	32	7	540	340	54
05-Aug-98	22.8	8.31	238	1283	8.08	0.57	0.33	0.1	0.11	0.059		3.0	1100	26	8	280	600	4
17-Aug-98	19.82	9.72	274	1133	7.8	0.01	0.44	0.03	0.122	0.056		5.0	1180	26	7	140	80	60
31-Aug-98	23.44	11.99	239	1473	8.45	0.61	0.61	0.04	0.132	0.057		4.0	1480	46	11	640	360	60
28-Sep-98	15.7	7.8	218	951	7.4	0.63	0.44	0.03	0.121	0.058		4.0	1270	27	7	40	70	12

Blank Spaces=Data Not Available, Underlined Values=Less Than, Irrigation Season Defined as April 1 through Sept. 30

c:\data\lotus\lowpayte\lprtm\lsba-tmdl.wk4

	Temp.	Dissolved Oxygen	Conductivity	Flow estimated	pH	Nitrates/ Nitrites	TKN	Ammonia	Total Phos.	ortho- Phos.	Hg	Ar	Fe	Susp. Solids	Turbidity	Fecal Coliform	Fecal Strep.	E. coli
	C	mg/l	umhos	CFS	su	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	ug/l	mg/l	FTU	CFU/100 ml	CFU/100 ml	CFU/100 ml
Overall																		
Average	12.1	11.1	131.8	5254	7.7	0.30	0.36	0.02	0.125	0.044	0.2	2.2	1739	43	10	161	180	35
Stand. Dev.	6.8	2.0	67.0	4489	0.5	0.26	0.15	0.02	0.072	0.033	0.0	1.5	1460	39	9	158	186	37
Count	35	31	35	37	34	34	35	35	35	34	10	25	35	35	35	34	34	11
Max.	23.4	14.5	280.0	18193	8.5	1.02	0.77	0.10	0.400	0.167	0.2	6.0	6590	139	44	640	700	130
Min.	1.5	7.8	54.2	648	6.2	0.01	0.03	0.01	0.057	0.015	0.2	1.0	340	8	3	20	10	2
Water year 1997																		
Average	11.8	11.1	122.0	6300	7.6	0.3	0.3	0.02	0.122	0.046	0.20	3	1727	42	11	130	176	ERR
Stand. Dev.	6.4	1.9	66.9	4522	0.5	0.3	0.1	0.01	0.056	0.032	0.00	1	1274	38	9	125	186	ERR
Count	18.0	17.0	18.0	18	18	18	18	18.00	18	18	10	8	18	18	18	18	18	0
Max.	22.1	14.5	280.0	13893	8.5	1.0	0.5	0.04	0.257	0.167	0.20	6	4480	134	39	580	700	ERR
Min.	2.4	8.4	54.2	648	6.2	0.1	0.0	0.01	0.057	0.017	0.20	2	340	8	3	20	10	ERR
Irrigation Season 1997																		
Average	15.2	9.9	133.1	6323	7.6	0.35	0.36	0.02	0.145	0.055	0.2	3.3	2094	53	12	167	204	ERR
Stand. Dev.	4.9	1.2	75.4	5168	0.5	0.29	0.12	0.00	0.054	0.035	0.0	1.5	1375	41	10	137	173	ERR
Count	12	11	12	12	12	12	12	12	12	12	4	8	12	12	12	12	12	0
Max.	22.1	12.3	280.0	13893	8.5	1.02	0.52	0.02	0.257	0.167	0.2	6.0	4480	134	39	580	700	ERR
Min.	7.4	8.4	54.2	648	6.2	0.11	0.03	0.01	0.090	0.024	0.2	2.0	610	14	5	30	10	ERR
Non-Irrigation 1997																		
Average	5.0	13.2	99.8	6255	7.5	0.20	0.30	0.02	0.078	0.028	0.2	ERR	993	21	8	57	119	ERR
Stand. Dev.	2.2	1.0	36.7	2813	0.5	0.09	0.07	0.01	0.027	0.009	0.0	ERR	527	14	4	33	197	ERR
Count	6	6	6	6	6	6	6	6	6	6	6	0	6	6	6	6	6	0
Max.	8.8	14.5	179.0	10193	8.4	0.36	0.39	0.04	0.136	0.046	0.2	ERR	2040	40	17	120	560	ERR
Min.	2.4	12.0	67.3	1543	6.8	0.08	0.20	0.01	0.057	0.017	0.2	ERR	340	8	3	20	18	ERR
Water year 1998																		
Average	12.4	11.1	142.3	4262	7.8	0.31	0.37	0.03	0.129	0.042	ERR	1.7	1752	44	10	195	185	35
Stand. Dev.	7.3	2.0	65.5	4225	0.5	0.26	0.18	0.02	0.086	0.035	ERR	1.3	1634	41	9	183	186	37
Count	17	14	17	19	16	16	17	17	17	16	0	17	17	17	17	16	16	11
Max.	23.4	14.1	274.0	18193	8.5	0.91	0.77	0.10	0.400	0.160	ERR	5.0	6590	139	44	640	600	130
Min.	1.5	7.8	55.7	951	6.8	0.01	0.12	0.01	0.063	0.015	ERR	1.0	510	11	4	26	16	2
Irrigation Season 1998																		
Average	16.6	10.3	144.6	5375	7.8	0.35	0.40	0.03	0.140	0.036	ERR	2.1	1722	47	9	254	239	35
Stand. Dev.	5.3	1.7	78.6	4966	0.5	0.30	0.16	0.02	0.090	0.017	ERR	1.5	1260	41	3	192	198	37
Count	11	10	11	12	10	11	11	11	11	11	0	11	11	11	11	11	11	11
Max.	23.4	12.5	274.0	18193	8.5	0.91	0.74	0.10	0.400	0.059	ERR	5.0	5130	139	14	640	600	130
Min.	7.3	7.8	55.7	951	7.1	0.01	0.12	0.01	0.063	0.017	ERR	1.0	720	15	4	40	60	2
Non-Irrigation 1998																		
Average	4.9	13.2	138.0	2354	7.8	0.22	0.33	0.03	0.109	0.054	ERR	1.0	1807	37	12	66	66	ERR
Stand. Dev.	2.8	1.0	28.6	651	0.5	0.12	0.20	0.03	0.073	0.054	ERR	0.0	2157	38	14	41	55	ERR
Count	6	4	6	7	6	5	6	6	6	5	0	6	6	6	6	5	5	0
Max.	10.0	14.1	186.0	3253	8.4	0.32	0.77	0.09	0.270	0.160	ERR	1.0	6590	122	44	136	160	ERR
Min.	1.5	11.6	98.0	1523	6.8	0.02	0.23	0.01	0.066	0.015	ERR	1.0	510	11	4	26	16	ERR